倍控®
B K H D

BKHD-B760-6LAN Motherboard

VER 1.0

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Safety Guide

To ensure optimal use of Beikong products, please review the user manual in its entirety. Before reviewing product-specific information, we kindly request that you carefully read the safety instructions.

# Product Version Identification

The product version number can be found on the motherboard, where X.X represents a number. For example, if the version is indicated as [VER1.0], it signifies that the current version of the motherboard is 1.0. The BIOS interface homepage provides information such as [XXXXNP-XXXX], which denotes the BIOS version number utilized by the current product. When updating the motherboard's BIOS, driver, or referencing other technical documents, please refer to the product version label for the most up-to-date information.

Catalog

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Product Images

Please be advised that products manufactured in different batches may exhibit slight variations in appearance. To ensure the most accurate representation, please refer to the actual received goods.
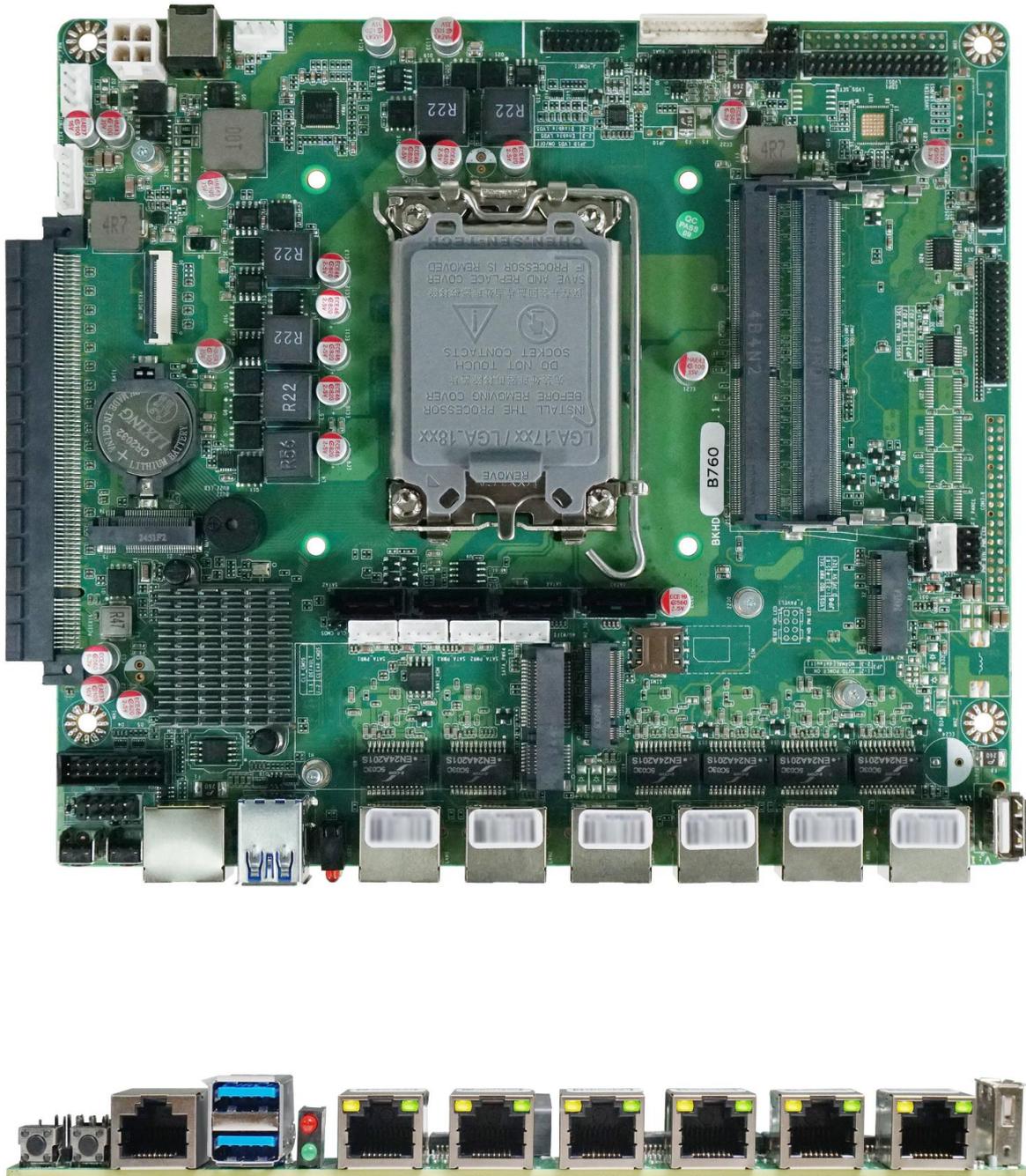
Product Profile

The B760-6LAN is a high-performance industrial motherboard based on the Intel B760 chipset. It is compatible with 12th/13th/14th generation Intel processors (LGA1700), supports dual-channel DDR4 SO-DIMM memory, and integrates 6x 2.5Gb Ethernet ports and multi-channel storage expansion interfaces. With abundant expansion slots, it is suitable for various application scenarios such as network security, virtualization gateways, industrial automation, IoT edge computing, and SD-WAN systems.

Main features:

Powerful Computing Performance

Supports Intel 12th/13th/14th generation Core/Pentium/Celeron processors with LGA1700 socket, powered by the Intel B760 chipset, delivering efficient data channels and rich I/O control capabilities. Wide compatibility, compatible with various mainstream operating systems.

Powerful Network Architecture

Onboard 6 × Intel I226V controllers, providing six independent 2.5GbE RJ45 network interfaces. Supports Link Aggregation (LACP), VLANs, virtual bridges, bypass, and multi-WAN access. Meets the high-throughput requirements of firewalls, routers, load balancers, and security gateway systems.

Advanced Expansion Capabilities

Provides a PCIe 5.0 x16 high-speed expansion slot, offering ample bandwidth for future hardware. Can be expanded to PCIe x4 via FPC cable. Multiple M.2 expansion interfaces (Key-E + Key-B) are ready for wireless communication modules.

Extensive Industrial Expansion Interfaces

Provides 1 x mPCIe slot, supporting wireless modules or I/O expansion cards. Expandable to up to 6 COM ports, compatible with industrial automation equipment and control systems. Supports GPIO, I2C, TPM, LPT, and USB 2.0/3.0 expansion pins for flexible connection to peripheral devices.

Enterprise-Grade Power Supply and Reliability

Supports wide temperature and humidity operating ranges, adaptable to harsh industrial environments. Dual power supply design, compatible with ATX 4-pin or DC power interfaces, supports DC 19V/24V input. Provides comprehensive thermal solutions for stable long-term operation in harsh environments such as server rooms, industrial control sites, or edge nodes.

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Motherboard Specifications

Processor	Product Collection	Intel® 12th/13th/14th Gen Processor
	Sockets Supported	FCLGA1700
Memory specifications	Memory type	2*DDR4 SO-DIMM
	Maximum capacity	2*32GB
	Maximum frequency	3200 MT/s
Storage specifications	SATA	4*SATA 3.0
	M.2	1*M.2 Key-M 2280 (PCIe Gen4 x4)
Network features	Ethernet	6*2.5GbE
	Controller	6*Intel I226V
Extension interface	PCIe	1*PCIe x16 (PCIe 5.0), 1*PCIe x4 (Via FPC Cables)
	mPCIe	1*mPCIe (USB 2.0 signal)
	M.2	1*M.2 Key-E 2230 (USB/PCIe/CNVi), 1*M.2 Key-B 3052 (USB3.0 signal)
Display functions	Pins	1*J_VGA/1*J_HDMI
	Chip	Depends on the processor
Backplane I/O	USB	2*USB-A 3.2 (10Gb/s) Ports
	Console	1*RJ45 COM-RS232
	Ethernet	6*RJ45
	Power supply	1*Jack DC 5.5/2.5mm
Onboard I/O	SATA	4*SATA Data connector, 4*SATA Power socket
	USB	1*USB-A 2.0
	Display	1*J_VGA, 1*J_HDMI, 1*J_eDP or J_LVDS
	SIM	1*Nano SIM card solts

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	Fan	1*CPU_FAN, 1*SYS_FAN
		1*F_PANEL
		1*J_COM 2, 1*J_COM 3-6 (can expand 6x COM ports)
		1*F_USB 3.0 (can expand 2x USB3.0 ports)
	Pins	2*F_USB 2.0 (can expand 4x USB2.0 ports)
		1*J_GPIO or J_LPT
		1*J_I2C, 1*J_KB/MS
		1*J_TPM
Power supply mode		DC 19/24V, 1*ATX 4-pin Connector or 1*Jack DC 24V
Motherboard size	Specification	180*200 (mm)
Work Environment	Temperature	-20~60℃
	Humidity	0%~90% (Relative humidity, no condensation)

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Motherboard Installation

Safety Note

● Please do not remove the serial number and agent warranty sticker from the motherboard prior to installation. Doing so may affect the product's warranty recognition standard.

● Prior to installing or removing the motherboard or other hardware devices, please ensure that the power is turned off and the power cord is unplugged from the socket.

● When installing additional hardware devices on the motherboard interfaces, please ensure that the connectors and sockets are securely fastened.

● When handling the motherboard, please avoid contact with the metal wiring components to prevent the risk of short circuits.

● It is recommended that an anti-static wrist strap be worn when handling the motherboard, central processing unit (CPU), or memory. In the absence of an anti-static wrist strap, it is advisable to ensure that your hands are dry and to touch a metal object first in order to eliminate static electricity.

● Before installing the motherboard, we kindly request that place it on an antistatic mat or in an antistatic bag.

● Make sure the power adapter is turned off before unplugging the motherboard power connector.

● Before turning on the power, make sure the voltage of the adapter is within the standard voltage range.

● Before turning on the power, make sure all hardware device cables and power cords are properly connected.

● Do not allow the fixing screws to collide with the circuits or parts on the motherboard to avoid damage or malfunction of the motherboard.

● Make sure there are no loose screws or metal parts on the motherboard or inside the computer case before using the unit.

● Please secure the computer host in a stable location before starting the device.

● To prevent system failure, do not place the unit in an environment where the temperature is excessive.

● Turning on the power before installation is complete may damage the motherboard, other equipment, or yourself.

● If you are unfamiliar with how to perform the installation, or if you have any technical problems using this product, please contact a professional technician.

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Memory Installation

The motherboard provides DDR4 SODIMM memory slot.
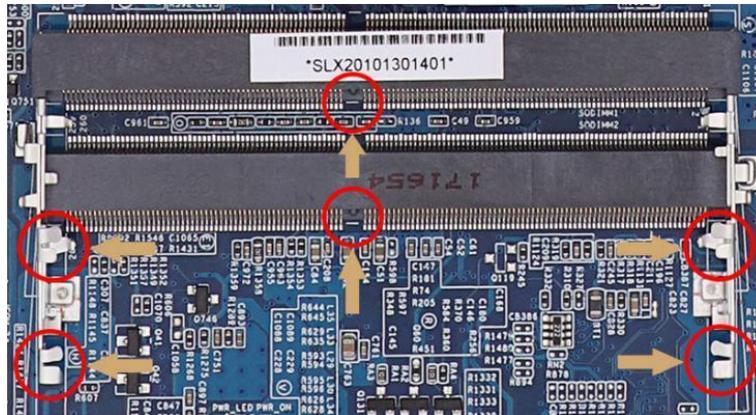
Before installing memory:

1. Please confirm that the memory you purchased is compatible with the specifications supported by this motherboard.

2. Before installing or removing the memory, please make sure that the power of the computer is turned off to avoid damage.

3. The memory design has a foolproof mark. If you insert the memory in the wrong direction, the memory cannot be installed. Please change the direction.

When installing memory:

1. Before installing or removing memory, please turn off the power and unplug the power cord.

2. Carefully hold the two ends of the Memory Stick and do not touch the metal contacts on the Memory Stick.

3. Align the metal contacts of the memory with the memory slot, making sure that the concave hole is aligned with the convex point of the upper slot.

4. Insert the memory into the slot at an angle of 30 degrees, then press the Memory Stick down until you hear a "click," indicating that the memory has been successfully installed and is ready to use. (Note: Do not press the Memory Stick too hard to avoid damaging the memory).

5. To remove the Memory Stick, push out the tabs at both ends of the memory slot simultaneously, and then remove the Memory Stick.

To remove the memory:

Use two fingers to push the latches at either end of the slot outward, the memory will pop up, then remove the memory.

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Jumper Setting

Before installing the hardware device, you can set the corresponding jumpers according to your needs based on the following table.

To identify the first pin of a jumper or connector

Look at the marking next to the jumper or connector. The triangle symbol "▲" or "1" or a bold line indicates the first pin; check the pad on the back of the motherboard. The square pad is the first pin. When connecting the connector to the device, be careful to distinguish the first pin. Mixing the pins will damage the motherboard.

2-pin headers: Insert a jumper cap into both pins turns them off (short).

3-pin headers: Insert a jumper cap into pins 1-2 or pins 2-3 to off (short) them.
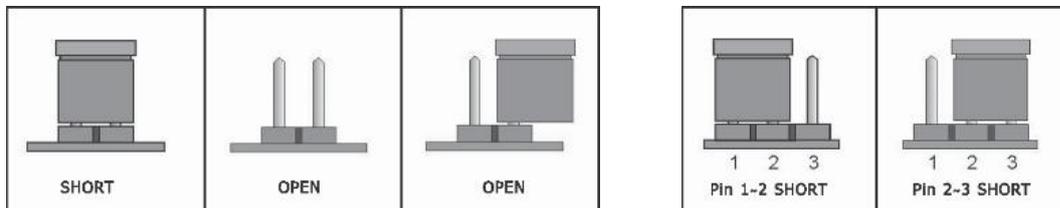
CLR_CMOS: CMOS data retention/clear

Image	Status	Setting
	Open	Normal (Default)
	Short	Restore BIOS to default settings

Before clearing the CMOS, please turn off the device and disconnect the power to avoid damaging the motherboard.

Motherboard Pin Definition

SATA Data

The motherboard provides 7-pin SATA data socket

Image	PIN	Definition	PIN	Definition
	1	GND	2	SATA_TXP
	3	SATA_TXN	4	GND
	5	SATA_RXN	6	SATA_RXP
	7	GND		-

SATA PWR

The motherboard provides 4-pin SATA power socket

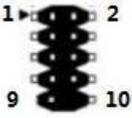| Image	PIN	Definition
	1	+12V
	2	GND
	3	GND
	4	+5V

Tip: The 1st pin of the SATA_PWR hard disk power supply interface is +12V output, and the 4th pin is +5V output.

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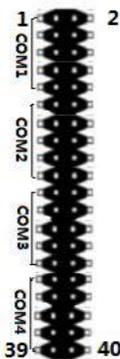
Serial Port (COM)

The motherboard provides RJ45 COM port

Image	PIN	Definition	PIN	Definition
	1	RTS#	2	DTR#
	3	TXD	4	N/A
	5	GND	6	RXD
	7	DSR#	8	CTS#

The motherboard provides COM 2 pins (2*5-pin, 2.54 mm pitch, 10th pin is empty)

Image	PIN	Definition	PIN	Definition
	1	-NDCD	2	SIN
	3	SOUT	4	DTR#
	5	GND	6	DSR#
	7	RTS#	8	CTS#
	9	RI#		

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The motherboard provides COM 3-6 pins

Image	PIN	Definition	PIN	Definition
	1	-NDCD	2	SIN
	3	SOUT	4	DTR#
	5	GND	6	DSR#
	7	RTS#	8	CTS#
	9	RI#	10	
	11	-NDCD	12	SIN
	13	SOUT	14	DTR#
	15	GND	16	DSR#
	17	RTS#	18	CTS#
	19	RI#	20	
	21	-NDCD	22	SIN
	23	SOUT	24	DTR#
	25	GND	26	DSR#
	27	RTS#	28	CTS#
	29	RI#	30	
	31	-NDCD	32	SIN
	33	SOUT	34	DTR#
	35	GND	36	DSR#
	37	RTS#	38	CTS#
	39	RI#	40	

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Front panel pin: F_PANEL

The motherboard provides F_PANEL pins (2*4-pin, 2.54 mm pitch):
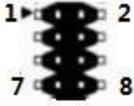
Image	PIN	Definition	PIN	Definition
	1	HDD_LED+	2	PWR_LED+
	3	HDD_LED-	4	PWR_LED-
	5	GND	6	GND
	7	RESET	8	PWR_ON

KB/MS Mouse and Keyboard Interface PS/2 port
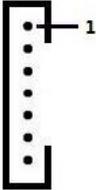
Image	PIN	Definition
	1	KB_DATA
	2	KB_CLK
	3	GND
	4	MS_DATA
	5	MS_CLK
	6	GND
	7	VCC

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USB Expansion pin: F_USB

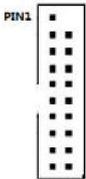Before connecting the USB expansion board, be sure to turn off the computer and unplug the power cord from the socket to avoid damaging the USB expansion board.
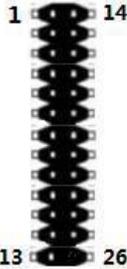
The motherboard provides F_USB 2.0 pins
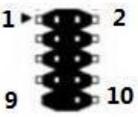
Image	PIN	Definition	PIN	Definition
	1	+5V	2	+5V
	3	USB1_DATA-	4	USB2_DATA-
	5	USB1_DATA+	6	USB2_DATA+
	7	GND	8	GND
			10	GND

The motherboard provides F_USB 3.0 pins

Image	PIN	Definition	PIN	Definition
	1	VBUS	2	N/A
	3	INTA_P1_SSRX-	4	VBUS
	5	INTA_P1_SSRX+	6	INTA_P2_SSRX-
	7	GND	8	INTA_P2_SSRX+
	9	INTA_P1_SSRX-	10	GND
	11	INTA_P1_SSRX+	12	INTA_P2_SSRX-
	13	GND	14	INTA_P2_SSRX+
	15	INTA_P1_D-	16	GND
	17	INTA_P1_D+	18	INTA_P2_D-
	19	ID	20	INTA_P2_D+

Printer interface: LPT

Image	PIN	Definition	PIN	Definition
	1	R_STB	14	R_AFD-
	2	R_PD0	15	R_ERR-
	3	R_PD1	16	R_INIT-
	4	R_PD2	17	R_SLIN-
	5	R_PD3	18	GND
	6	R_PD4	19	GND
	7	R_PD5	20	GND
	8	R_PD6	21	GND
	9	R_PD7	22	GND
	10	R_ACK-	23	GND
	11	R_BUSY	24	GND
	12	R_PE	25	GND
	13	R_SLCT	26	N/C

VGA Expansion pin: VGA_H

The motherboard provides VGA_H pins (1*12-pin, 2.00 mm pitch):
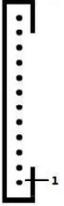
Image	PIN	Definition	PIN	Definition
	1	GND	2	VSync
	3	HSync	4	GND
	5	Red	6	GND
	7	Green	8	GND
	9	Blue	10	GND
	11	DCC_Data	12	DCC_Clk

HDMI Expansion pin: JHDMI

The motherboard provides JHDMI pins (2*8-pin, 2.00 mm pitch):

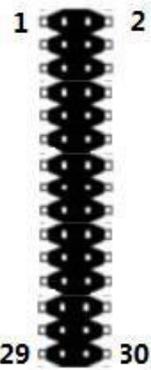| Image	PIN	Definition	PIN	Definition
	1	DDI1_TXP2L	2	DDI1_SCLDDC
	3	DDI1_TXN2L	4	DDI1_DALDDC
	5	DDI1_TXP1L	6	N/A
	7	DDI1_TXN1L	8	HDMI-B_PLUG
	9	DDI1_TXP0L	10	5V_HDMI
	11	DDI1_TXN0L	12	GND
	13	DDI1_TXCPL	14	GND
	15	DDI1_TXCNL	16	GND

eDP /LVDS Expansion pin: J_eDP/J_LVDS

<mark>Only</mark> one of LVDS and eDP can be selected on the motherboard.

The motherboard provides eDP pins (2*15-pin):
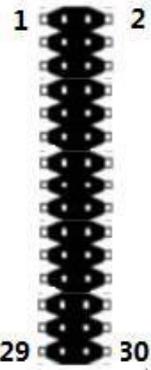
Image	PIN	Definition	PIN	Definition
	1	VCC	2	VCC
	3	NC	4	NC
	5	EDP1_DATA0P	6	EDP1_DATA0N
	7	GND	8	GND
	9	EDP1_DATA1P	10	EDP1_DATA1N
	11	GND	12	GND
	13	EDP1_DATA2P	14	EDP1_DATA2N
	15	GND	16	GND
	17	EDP1_DATA3P	18	EDP1_DATA3N
	19	GND	20	GND
	21	EDP1_AUXP	22	EDP1_AUXN
	23	GND	24	EDP1_HPD
	25	EDP1_BKLCTL	26	EDP1_BKLEN
	27	GND	28	GND
	29	VLED1	30	VLED1

The motherboard provides LVDS pins (2*15-pin):

Image	PIN	Definition	PIN	Definition
	1	VCC	2	VCC
	3	VCC	4	GND
	5	GND	6	GND
	7	RX00-	8	RX00+
	9	RX01-	10	RX01+
	11	RX02-	12	RX02+
	13	GND	14	GND
	15	RX0C-	16	RX0C+
	17	RX03-	18	RX03+
	19	RXE0-	20	RXE0+
	21	RXE1-	22	RXE1+
	23	RXE2-	24	RXE2+
	25	GND	26	GND
	27	RXEC-	28	RXEC+
	29	RXE3-	30	RXE3+

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Backlight brightness adjustment BKCTL

Image	Status	Setting
	1-2	Increase backlight brightness
	2-3	Reduce backlight brightness

LVDS voltage selection (JP6)

Image	Status	Setting
	1-2	3.3V
	3-4	5V
	5-6	12V

Inverter
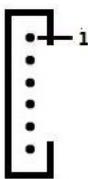
Image	PIN	Definition
	1	GND
	2	GND
	3	ADJ
	4	BLK_EN
	5	VCC
	6	VCC

Cooling fan power socket: CPU_FAN, SYS_FAN

The motherboard provides cooling fan power pins
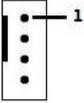
Image	PIN	Definition
	1	Ground
	2	+12V
	3	FAN_TACH
	4	FAN_PWM

Inter-Integrated Circuit Protocol (I2C)

The motherboard provides I2C pins.
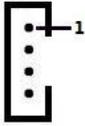
Image	PIN	Definition
	1	3.3V
	2	GND
	3	SLC
	4	SDA

SIM card slot: SIMB

The motherboard provides SIM card slot (on the back) for installing an LTE SIM card.

Note: When inserting the SIM card, make sure the chip is facing downwards (the chip faces the motherboard).

BIOS User Guide

BIOS Description

This motherboard uses AMI BIOS. BIOS stands for (Basic Input Output System). It is a set of programs stored on a ROM (Read Only Memory) chip on the computer's motherboard. It stores the computer's most important basic I/O programs, the power-on self-test program, and the system startup program. It can read and write specific information about system settings from the CMOS. Its primary function is to provide the most basic and immediate hardware settings and control for the computer.

When you turn on your computer, the BIOS is the first program to run. It has the following main functions:

● The Power-On Self-Test (POST) checks whether the computer is functioning properly.

● It initializes and tests some external devices and loads your operating system.

● It provides the lowest-level, most basic control of your computer hardware.

● You manage your computer through the SETUP function in the BIOS.

The BIOS data is stored in a CMOS/R RAM chip on the motherboard, maintained by a 3.3V button battery. It contains important system information and the BIOS Setup program for setting system parameters. When the system is operating normally, the BIOS does not need to be modified. However, if the CMOS data is lost due to other reasons, the BIOS must be reset.

Note:

Incorrect BIOS settings can directly damage the computer hardware and even burn out the motherboard. Those unfamiliar with the system are advised to modify the settings with caution. Because the motherboard BIOS is constantly being updated, the BIOS information in this manual is for reference only. We cannot guarantee that the BIOS information in this manual will be consistent with the actual BIOS information on the motherboard.

BIOS Settings

When the motherboard is powered on or the system is restarted, the following prompt will appear on the display screen in the Post interface. Press "DEL" on the keyboard to enter BIOS Setup.

If this message disappears before you respond, you can press <Ctrl> + <Alt> + <Del> at the same time to restart the computer, or shut down and then restart the computer, or press the power button on the case to restart the computer.

Keyboard keys	Functional Description
← / →	Move the Left and Right arrows to select the screen.
↑ / ↓	Move the Up and Down arrows to select the item.
+ / -	Increase/Decrease value or Change selection
<Enter>	Select, Confirm this option or Enter the submenu
<ESC>	Return to Main page, or End the setup process from Main page
<F1>	Show related Help instructions
<F2>	Restore previous settings
<F9>	Load the optimized settings (BIOS defaults)
<F10>	Save the changed settings and reboot

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Common fault analysis and solutions

We have compiled some frequently asked questions for your reference. Please check
https://bkminipc.com/frequently-asked-questions-and-answers/

Error	Inspection Method
Unable to start after power on	Make sure the power cord is properly connected. Make sure that the power supply you are using meets the power supply requirements of the motherboard. Try to reinsert the Memory Stick. Try to replace the Memory Stick. Try to clear the CMOS of the main board. Please confirm if there is an external expansion card and if it is normal after removing the external card.
Unable to display after power on	Make sure the monitor is turned on. Make sure the monitor and host power cables are properly connected. Make sure the monitor and host cables are properly connected. Check to see if the monitor is in "Sleep" mode. Try changing the monitor interface or replacing the monitor.
BIOS Setup cannot be saved	Check that the CMOS battery is installed Try to replace the CMOS battery (CR2032) Adjust the time and date in BIOS setup
Unable to find a bootable device	Make sure the drive's power and data cables are properly connected. Make sure the operating system is installed on the drive. Make sure the hard drive is not physically damaged.
Blue screen or freeze when logging on to the system	Check if the Memory Stick and External Card are loose. Try removing the newly installed hardware and uninstalling the newly installed driver or software. Try replacing the memory with a different specification.
Slow entry into the operating system	Check if the CPU cooling fan is running normally. Check if the remaining space of the system partition is insufficient. Use software to check for bad sectors on the hard drive.
System restarts automatically	Confirm that the CPU cooling fan is rotating normally. Confirm that the switch/reset button has not been accidentally touched. Confirm that the Memory Stick and external card are loose. Confirm that the power supply has sufficient load capacity, try to replace the power supply Check if the system is infected with viruses.
Unable to detect USB device	Confirm that the USB device requires separate power. Confirm that the USB interface has poor contact. Confirm that the USB controller is enabled in the BIOS setup.

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Submit your suggestions and ideas in the community	https://www.reddit.com/r/bkminipc/	
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